PERFORMANCE REPORT

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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2012 Fisheries Management Survey Report

Gilmer Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Gilmer Reservoir were surveyed in 2012 using electrofishing and trap netting and in 2013 using gill netting. Anglers were surveyed from June 2012 through May 2013 with an access-point creel survey. Historical data are presented with the 2012-2013 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir Description:** Gilmer Reservoir is a 1,010-acre impoundment constructed on Kelsey Creek in the Big Cypress River Basin and controlled by the City of Gilmer. Structural habitat consists primarily of natural shoreline features. Habitat is dominated by hydrilla and limited amounts of native aquatic plants.

- **Management History:** Largemouth Bass have been managed with an 18-inch minimum length limit since the reservoir was opened to public fishing. The reservoir has developed a well-known trophy Largemouth Bass fishery. The Texas Parks and Wildlife Department has stocked Florida Largemouth Bass since 1996 and offspring of ShareLunker broodfish in 2011 to maintain this trophy fishery. Channel Catfish have been stocked in the reservoir, but a self-sustaining population has failed to establish.

- **Fish Community:**
  - **Prey species:** Threadfin Shad were abundant and provided a quality prey source. Gizzard Shad were present with over half being vulnerable to predators. Bluegill were the most abundant sunfish species and serve as an additional prey source for Largemouth Bass in the reservoir.

  - **Catfishes:** Only one Channel Catfish was collected during the 2013 gill netting survey and few anglers targeted catfish during the creel period.

  - **Largemouth bass:** Electrofishing catch rates of Largemouth Bass were higher in 2012 than in previous years. Largemouth Bass received the highest percentage of angling effort (61.8%) compared to other species in the reservoir from June 2012 through May 2013. Largemouth Bass had above-average growth and condition, indicating abundant prey availability.

  - **Crappie:** Only two Black Crappies were collected during trap netting in 2012, however, an excellent crappie fishery has developed. Anglers were more successful catching crappie in the 2012/2013 creel survey period compared to past surveys. Directed angling effort and harvest increased in the 2012/2013 survey compared to the 2005/2006 survey. No White Crappies were observed in either the trap netting or creel surveys.

- **Management Strategies:** Conduct electrofishing surveys every other year beginning in 2014 and gill nets in 2017. Angler access will be surveyed in 2016. Hydrilla will be inspected annually to monitor access-related issues and to watch for other non-native invasive aquatic vegetation. Technical guidance will be given to the controlling authority regarding invasive aquatic vegetation management as necessary. Largemouth Bass will continue to be managed with the 18-inch minimum length limit. The management objective of the 18-inch minimum length limit is to increase the abundance of larger bass in the population by protecting young bass, under conditions of moderate to high growth rates, thereby improving the quality of the fishery. Harvest regulation will be evaluated every two years with fall electrofishing and a category-3 growth survey in fall 2016 to ensure management objectives are being met.

INTRODUCTION

This document is a summary of fisheries data collected from Gilmer Reservoir from June 2012 through May 2013. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2012-2013 data for comparison.

Reservoir Description

Gilmer Reservoir is located on Kelsey Creek in the Cypress River Basin. It was constructed by the City of Gilmer for municipal water and public recreation. Construction began in 1995 and the dam was completed in 2000. The reservoir filled to its conservation pool of 315 ft msl, which inundated 1,010 acres (Table 1) and the reservoir was opened to public fishing on September 29, 2001. The shoreline is undeveloped and consists of natural features. Hydrilla was present and covered 246 acres and coverage has remained relatively stable. Native aquatic vegetation covers less than 1 percent of the reservoir surface area. Water level data were not available for this reservoir due to the lack of a gauging station.

Angler Access

Gilmer Reservoir has one public boat launch east of the causeway on FM 852, which consists of two separate boat ramps and a courtesy dock. Additional boat ramp characteristics are located in Table 2. Shoreline access is limited to the area near the ramps.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Bister and Brice 2009) included:

1. Monitor angler directed effort and angling catch rates of crappie during the next access-point angler creel survey, June 2012 through May 2013. Due to poor catch rates through traditional fall trap netting, assess crappie growth, body condition, and year-class presence from angler-harvested crappies.
   Action: A creel survey was conducted during the recommended time period. Otoliths, length, and weight data were collected from angler-harvested crappies on one collection date (fall 2012) to determine growth rates and condition.
2. Continue to manage and maximize the reservoir's potential to produce trophy Largemouth Bass by monitoring population characteristics and prey abundance through fall electrofishing, stocking Florida Largemouth Bass, and monitoring angling effort and catch rates of Largemouth Bass through an access-point creel survey.
   Action: Fall electrofishing was conducted in 2010 and 2012 to monitor the Largemouth Bass population and to assess the prey fish community. Florida Largemouth Bass were stocked annually from 2008-2011 at the recommended rate. A creel survey was conducted during the review period.
3. Hydrilla is present in the reservoir and has the potential to cause access problems. Other invasive species (i.e., giant salvinia and waterhyacinth) at area reservoirs pose a potential threat to Gilmer Reservoir.
   Action: Annual vegetation surveys have been conducted to monitor for invasive plants. Giant salvinia was discovered at the ramp during fall 2012 and plants were removed by hand. No giant salvinia has been observed in subsequent visits to the ramp.
4. Continue to provide news releases and presentations to the public regarding issues/opportunities at Gilmer Reservoir.
   Action: Information regarding electrofishing and gill net surveys was posted through the district Facebook page. Gilmer Reservoir was included on a media press release regarding the discovery of giant salvina at several reservoirs in the district.

Harvest regulation history: Gilmer Reservoir was opened under statewide fish harvest regulations in 2001 for all species except Largemouth Bass (Table 3). Largemouth Bass have been managed with an 18-inch minimum length limit since the reservoir was opened to public fishing.

Stocking history: Prior to and immediately following impoundment, Gilmer reservoir was stocked with Bluegill, Channel Catfish, Florida Largemouth Bass, and Threadfin Shad. In recent years, additional Florida Largemouth Bass have been stocked to improve the trophy potential of the fishery. Offspring of ShareLunker Largemouth Bass were stocked in 2011. The complete stocking history is presented in Table 4.

Vegetation/habitat history: Coverage of aquatic vegetation in Gilmer Reservoir has been stable in past years. The City of Gilmer has lacked funding to actively manage hydrilla in the reservoir. To date, hydrilla has not caused access-related problems in the reservoir. Giant salvinia was discovered at the boat ramp during a creel survey in January 2013 and was removed by hand. It has not been observed in subsequent inspections.

Water transfer: Lake Gilmer is used as a water supply source by the City of Gilmer. No interbasin water transfers are known to exist.

METHODS

Fishes were collected by electrofishing (1.0 hour at 12, 5-min stations), gill netting (5 net nights at 5 stations), and trap netting (5 net nights at 5 stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing, and for gill and trap nets, as the number of fish caught per net night (fish/nn). An aquatic vegetation survey and a habitat survey were conducted in September 2012. Hydrilla-only surveys were conducted in 2009, 2010, and 2011 although area was not estimated in 2010. All survey sites were randomly selected and all surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2011).

An access-point angler creel survey was conducted from June 2012 through May 2013. The creel surveys consisted of 4 randomly-selected weekdays and 5 randomly-selected weekend days per quarter. Each day was partitioned into 3, 4.67-hour survey periods during June-August, 2, 5.5-hour periods during September-November, 2, 5-hour periods during December-February, and 3, 4.33-hour periods during March-May, which were randomly selected for each survey day. Creel surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2011).

Sampling statistics (CPUE for various length categories), structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007], and condition indices [relative weight (W_r)] were calculated for target fishes according to Anderson and Neumann (1996). Index of vulnerability (IOV) was calculated for gizzard shad (DiCenzo et al. 1996). Relative standard error (RSE = 100 X SE of the estimate/estimate) was calculated for all CPUE statistics and for creel statistics and SE was calculated for structural indices and IOV. Average age at 14 inches was determined using otoliths for Largemouth Bass 13.0 to 14.9 inches in 2012 (N = 13). Condition was determined for black crappie 9.0 to 10.9 inches from angler-harvested fish in November 2012 (N = 8). Average age at 10 inches was determined using otoliths for black crappie 9.0 to 10.9 inches collected from angler-harvested fish in November 2012 (N = 13).

Genetic analysis of Largemouth Bass was conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2011). Micro-satellite DNA analysis was used to determine genetic composition of individual fish from 2005 through 2012 and by electrophoresis in previous years.

RESULTS AND DISCUSSION

Habitat: The shoreline at Gilmer Reservoir consisted of natural features. Hydrilla coverage was 260 acres in 2009, 288 acres in 2011, and 246 acres in 2012 (Table 6). These estimates indicate hydrilla coverage in recent years may be close to maximum obtainable levels in the reservoir. Alligatorweed was present near the ramp and coverage was < 1 acre. Native submerged vegetation (coontail and pondweed) covered 2 acres, native floating-leaved vegetation (white water-lily, water-primrose, and American lotus) covered 4 acres, and native emergent vegetation (bulrush, pickerelweed, cattail, and smartweed) covered < 1 acre in 2012. Overall, native aquatic vegetation covered less than 1% of the reservoir surface area. Total aquatic vegetation coverage at Gilmer Reservoir was 25% of the reservoir surface area in 2012, and provides adequate habitat for the fish community. Standing timber covered 367 acres and constituted 36.3% of the total surface area.

Creel: Directed fishing effort by anglers during the 2012/2013 creel survey was highest for Largemouth Bass (61.8%) followed by crappie (20.0%) and sunfishes (17.4%) (Table 7). Estimates of effort for Largemouth Bass and sunfishes were similar to the 2001/2002 and 2005/2006 surveys, however, directed effort for crappie increased from 3.8%, to 13.6%, to 20.0% over the past three surveys. Total fishing effort for all species at Gilmer Reservoir was 33,163 h from June 2012 through May 2013, which was less than the 2005/2006 (47,719 h) and 2001/2002 (44,805 h) surveys (Table 8). Anglers spent an estimated $173,414 in direct expenditures during the 2012/2013 survey period which was slightly less than the 2005/2006 survey ($189,245) (Table 8). Creel zip code data show most anglers coming to Gilmer Reservoir are local with 67% traveling less than 20 miles and 94% traveling less than 50 miles (Appendix C). Less than 2% of anglers traveled from out of state.

Prey species: Threadfin Shad were abundant (413.0/h) and serve as a primary prey source for sport fish (Appendix A). The catch rate of Gizzard Shad during the 2012 electrofishing survey was 33.0/h, which was lower than the 2008 survey (63.0/h), but slightly higher than the 2010 survey (23.0/h) (Figure 1). Index of Vulnerability (IOV) was moderate, indicating 58% of Gizzard Shad were available to most predators, although IOV has been very low on past surveys (Figure 1). Despite a good IOV in 2012, the low abundance of Gizzard Shad provides a minimal contribution to the prey fish community. Since the reservoir opened in 2001, Gizzard Shad abundance has shown an overall declining trend while Threadfin Shad have increased in abundance over the same period (Brice 2005, Bister and Brice 2009).

Bluegill was the most abundant sunfish species during the 2012 electrofishing survey (319.0/h) (Figure 2), while Redear Sunfish (160.0/h) serve as an additional prey species in the reservoir (Figure 3). The combination of high numbers of sunfish from 4-6 inches along with abundant Threadfin Shad provides a wide size range of available prey for Largemouth Bass. Redear Sunfish and Bluegill also provide recreational opportunity for anglers, accounting for 17.4% of total directed fishing effort in 2012/2013. Although directed effort and harvest of sunfish species has declined over the past three creel surveys, the size structure of harvested sunfish has shifted to larger fish with over 60% of harvested sunfish 7 inches or larger in 2012/2013 (Table 9).

Channel catfish: Even though Channel Catfish have been stocked in this reservoir, a sustainable population has not been established. Only one Channel Catfish was collected during the 2013 spring gill netting survey. This is likely due to predation by Largemouth Bass. Less than 1% of anglers targeted catfish during the creel period.

Largemouth bass: The electrofishing catch rate of Largemouth Bass has increased over the past three surveys with 138.0/h in 2008, 178.0/h in 2010, and 218.0/h in 2012 (Figure 5). Even with the increase in relative abundance, growth and condition has not shown any signs of decline. Growth of Largemouth Bass was excellent in 2012: average age at 14 inches (13.0 to 14.9 inches) was 1.6 years (N = 13; range = 1-3 years) which was faster than in 2010 when the average age at 14 inches was 2.4 years (N = 13; range = 2-5 years). Condition of largemouth bass was above average with mean W_r for most inch groups >100 (Figure 5). Size structure indices were in range of a balanced population with a PSD of 41 and PSD-

P of 22 (Gablehouse 1984), which were similar to the 2010 and 2008 surveys. Recruitment appeared to be adequate with good catch rates of largemouth bass from 2-5 inches. Florida Largemouth Bass alleles were 42.0% in 2012 which was similar to the range of 33.6-60.0% observed from 2001-2004 (Table 11).

Anglers targeting Largemouth Bass fished 20.3 hours/acre during the 2012/2013 creel survey period, which was lower than the 2005/2006 survey (30.0 hours/acre) and the 2001/2002 survey (27.4 hours/acre) (Table 10). Angling catch rate of Largemouth Bass was 0.6/h during the 2012/2013 survey and was similar to the 2005/2006 survey, but lower than the 2001/2002 survey (Table 10). Anglers released 95.9% of all legal-sized Largemouth Bass. The estimated harvest of Largemouth Bass in 2012/2013 was 127 fish, which ranged from 14-22 inches (Figure 6). However, 40% of fish included in the harvest estimate were Largemouth Bass retained by live-release tournament anglers, which were subsequently released.

Crappie: Catch rates of crappie in trap nets were low with a CPUE of 0.4/nn. The two crappies collected were a 9-inch and an 11-inch Black Crappie with relative weights of 99 and 95, respectively. Even though trap netting has not been successful for collecting crappie, an excellent fishery does exist. Anglers targeting crappie fished 6.6 hours/acre in 2012/2013, which was similar to 2005/2006 survey, but much higher than the 1.7 hours/acre spent fishing for crappie in the 2001/2002 survey (Table 12). Growth of Black Crappie was excellent: average age at 10 inches (9.0 to 10.9 inches) from fish collected from anglers in November 2012 was 1.0 year (N = 13; range = all age 1). Mean condition (W_r) of Black Crappie at 10 inches (9.0 to 10.9 inches) was 106 (N = 8; range = 100 – 116). Angling catch rate of crappie in 2012/2013 was 1.6/h, lower than in past surveys (Table 12). The crappie fishery has shown continued improvement and popularity with increased directed effort and harvest over the past three creel surveys (Table 12). Only 2.5% of legal-sized crappies were released by anglers. Crappie harvest was dominated by fish just over the minimum length limit with 55% of all harvested crappie in the 10-inch length group (Figure 7). Although White Crappies have been observed in past surveys, only Black Crappies were observed during the 2012/2013 creel surveys.

Fisheries management plan for Gilmer Reservoir, Texas

Prepared – July 2013

ISSUE 1: Gilmer Reservoir has developed a quality Largemouth Bass fishery. Currently, Largemouth Bass are managed with an 18-inch minimum length limit. Management efforts should be made to maximize the reservoir's potential to produce a trophy Largemouth Bass fishery.

MANAGEMENT STRATEGIES

1. Conduct fall electrofishing surveys every two years beginning in 2014 to monitor Largemouth Bass abundance, growth, body condition, and size structure. These surveys will also assess the prey fish community.
2. Electrofishing survey data will be examined to ensure the 18-inch minimum length limit for Largemouth Bass is the most appropriate harvest regulation. Growth, relative abundance, and body condition of Largemouth Bass below 18 inches will be evaluated for evidence of "stock-piling" of smaller fish in the population. Length-at-age for Largemouth Bass ages 1-3 will be examined with a category-3 survey during standard sampling in fall 2016 to determine growth rates up to the minimum length limit.
3. Annually stock Florida Largemouth Bass at a rate of 100 fish/acre to maintain the trophy potential of the fishery.

ISSUE 2: Hydrilla is present in the reservoir and has the potential to cause access problems at the reservoir. Giant salvinia was discovered at the boat ramp January 19, 2013, and was removed by hand. Introduction of invasive species continue to pose a potential threat to Gilmer Reservoir.

MANAGEMENT STRATEGIES

1. Monitor for invasive aquatic plants during annual vegetation surveys.
2. Periodically check boat ramps for presence of giant salvinia and other invasive aquatic species.
3. Provide the City of Gilmer with technical information related to invasive aquatic vegetation management as necessary.

ISSUE 3: Anglers and stakeholders need to be informed about fisheries management activities, fishing opportunities, and other issues at Gilmer Reservoir.

MANAGEMENT STRATEGIES

1. Continue to provide news releases to the print, broadcast, and social media.
2. Continue to provide fisheries presentations to the public regarding issues/opportunities at Gilmer Reservoir.

ISSUE 4: Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. For example, zebra mussels (*Dreissena polymorpha*) can multiply rapidly and attach themselves to any available hard structure, restricting water flow in pipes, fouling swimming beaches and plugging engine cooling systems. Giant salvinia (*Salvinia molesta*) and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing and swimming. The financial costs of controlling and/or eradicating these types of invasive species are significant. Additionally, the potential for invasive species to spread to other river drainages and reservoirs via watercraft and other means is a serious threat to all public waters of the state.

MANAGEMENT STRATEGIES

1. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
2. Contact and educate marina owners about invasive species, and provide them with posters, literature, etc., so they can, in turn, educate their customers.
3. Educate the public about invasive species through the use of media and the internet.
4. Make a speaking point about invasive species when presenting to constituent and user groups.
5. Keep track of (i.e., map) future inter-basin water transfers to facilitate potential invasive species responses.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes annual invasive aquatic vegetation surveys, a supplemental electrofishing survey in 2014, and required electrofishing and gill netting surveys in 2016/2017 (Table 13). Annual vegetation surveys are necessary to monitor the status of hydrilla and to inspect for new infestations of non-native species. Supplemental electrofishing in 2014 will be conducted to monitor the Largemouth Bass and prey fish populations.

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Table 1. Characteristics of Gilmer Reservoir, Texas.

Characteristic	Description
Year constructed	2000
Controlling authority	City of Gilmer
County	Upshur
Reservoir type	Tributary
Surface area	1,010 acres
Watershed area	24,214 acres
Shoreline Development Index (SDI)	1.6
Shoreline length	7.5 miles
Maximum depth	28 ft
Conservation pool	315 ft msl
Conductivity	132 umhos/cm

Table 2. Boat ramp characteristics for Gilmer Reservoir, Texas, April, 2013. Reservoir elevation at time of survey was 315 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
FM 852 Public Ramp	32.75301 –95.00607	Y	100	309	Excellent, no access issues

Table 3. Harvest regulations for Gilmer Reservoir, Texas.

Species	Bag Limit	Length limit
Catfish, Channel	25	12-inch minimum
Bass, Largemouth	5	18-inch minimum
Crappie, White and Black crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

Table 4. Stocking history of Gilmer Reservoir, Texas. FGL = fingerling; AFGL = advanced fingerling; ADL = adults.

Species	Year	Number	Size
Threadfin Shad	1997	2,000	ADL
	2001	200	ADL
	2002	6,000	ADL
	Total	8,200	
Bluegill	2000	216,422	FGL
Channel Catfish	1996	6,236	FGL
	1997	400	ADL
	1997	9,918	FGL
	2000	4,125	AFGL
	2000	49,500	FGL
	2001	40,000	FGL
	Total	110,179	
Florida Largemouth Bass	1996	10,197	FGL
	1997	3,439	AFGL
	1997	20,282	FGL
	2000	11,405	FGL
	2001	80,000	FGL
	2008	102,852	FGL
	2009	101,517	FGL
	2010	101,866	FGL
	2011[1]	135,621	FGL
	Total	567,179	

[1]2011 Florida Largemouth Bass stockings included 30,891 Sharelunker broodfish offspring.

Table 5. Survey of structural habitat types, Gilmer Reservoir, Texas, 2012. Shoreline habitat type units are in miles and standing timber is acres.

Habitat type	Estimate	% of total
Natural	7.5 miles	100.0
Standing timber	367.0 acres	36.3

Table 6. Survey of aquatic vegetation, Gilmer Reservoir, Texas, 2009 – 2012. Surface area (acres) is listed with percent of total reservoir surface area in parentheses.

Vegetation	2009	2010[1]	2011	2012
Native submersed				2 (0.2)
Native floating-leaved				4 (0.4)
Native emergent				< 1 (0.1)
Non-native				
Hydrilla	260 (25.7)		288 (28.5)	246 (24.4)
Alligatorweed				< 1 (0.1)

[1] Hydrilla-only survey was conducted in 2010 and indicated little change, surface area was not calculated.

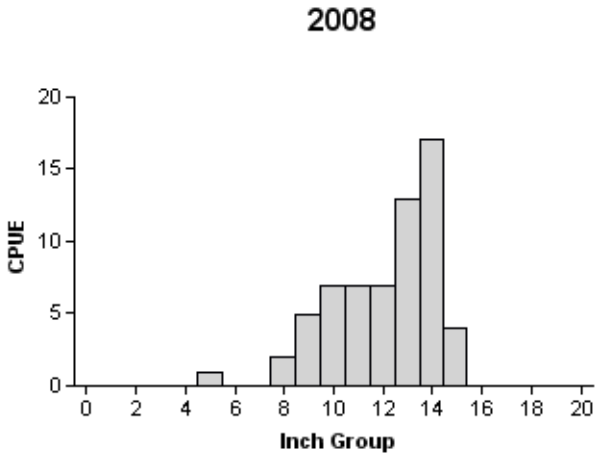
Table 7. Percent directed angler effort by species for Gilmer Reservoir, Texas, September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013.

Species	2001/2002	2005/2006	2012/2013
Catfish	2.4	1.1	0.3
Crappie	3.8	13.6	20.0
Largemouth Bass	61.8	65.4	61.8
Sunfishes	18.1	14.6	17.4
Anything	13.9	5.4	0.5

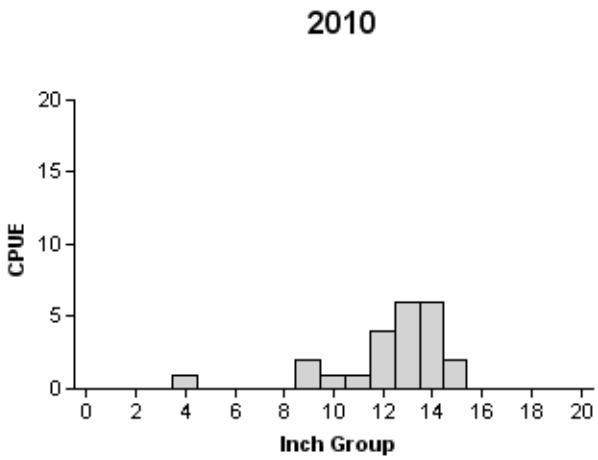
Table 8. Total fishing effort (h) for all species and total directed expenditures at Gilmer Reservoir, Texas, September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013. Relative standard error is in parentheses.

Creel statistic	2001/2002	2005/2006	2012/2013
Total fishing effort	44,805 (14)	47,719 (10)	33,163 (14)
Total directed expenditures	$56,893 (21)	$189,245 (17)	$173,414 (32)

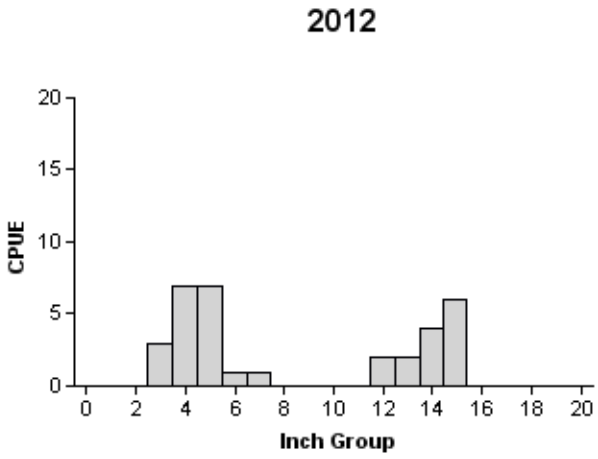
Gizzard Shad



Effort = 1.0
Total CPUE = 63.0 (20; 63)
IOV = 2 (1.7)



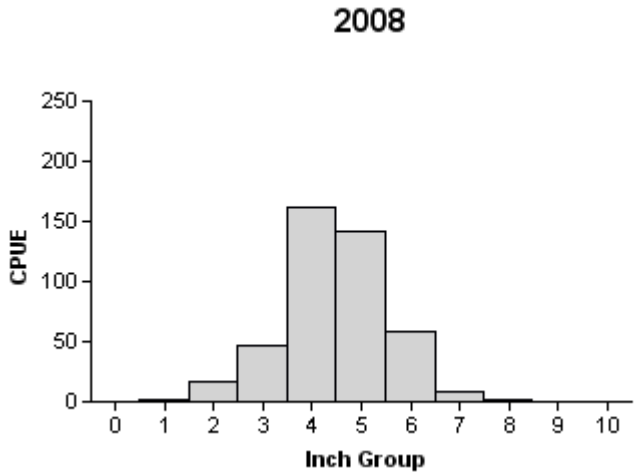
Effort = 1.0
Total CPUE = 23.0 (34; 23)
IOV = 4 (4.5)

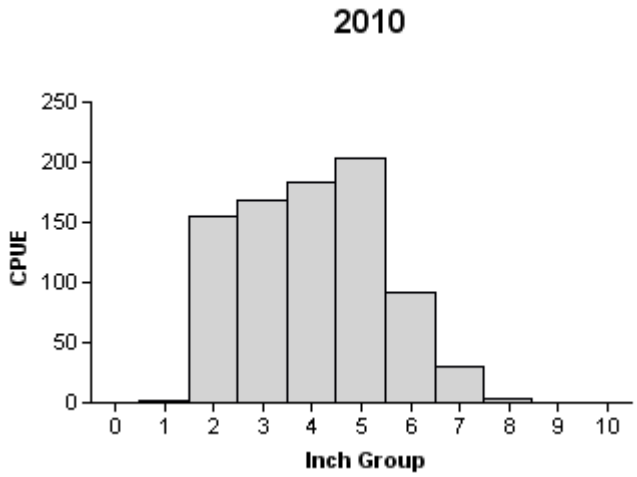


Effort = 1.0
Total CPUE = 33.0 (23; 33)
IOV = 58 (17.2)

Figure 1. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Gilmer Reservoir, Texas, 2008, 2010, and 2012.

Bluegill





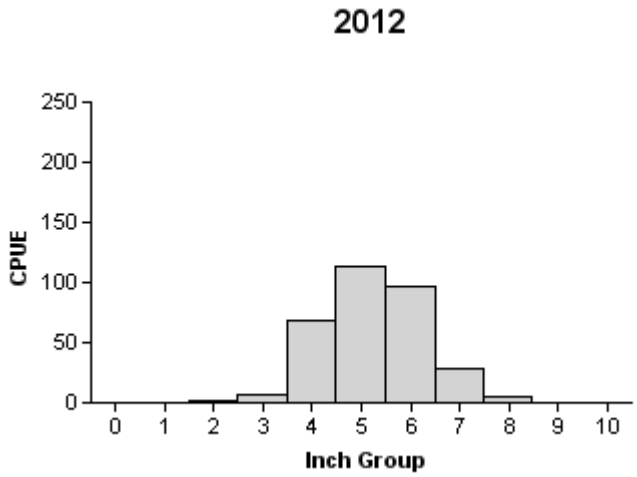
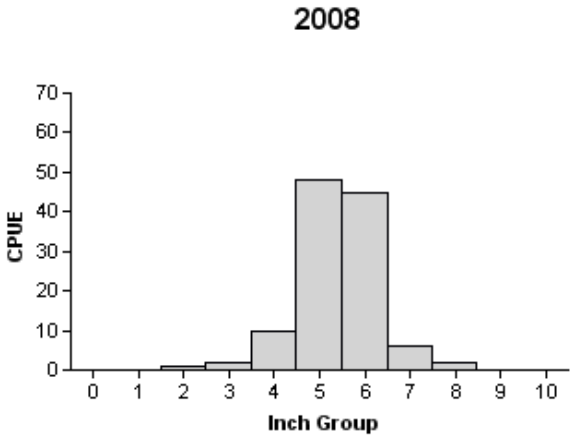
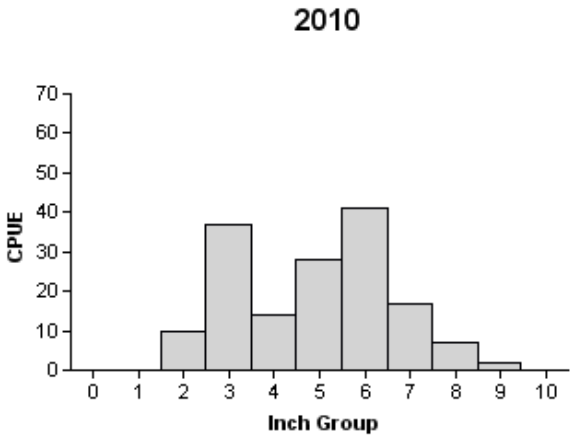


Figure 2. Number of Bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Gilmer Reservoir, Texas, 2008, 2010, and 2012.

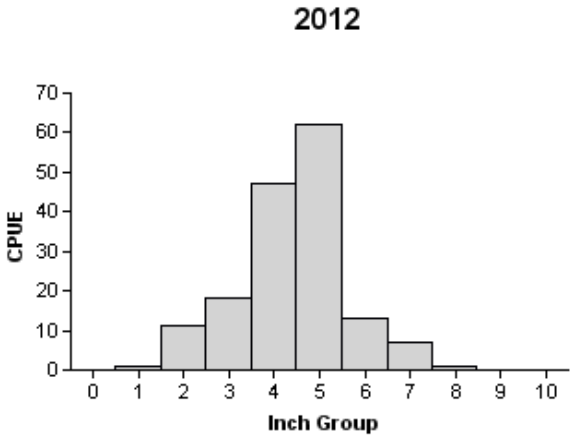
Redear Sunfish



Effort = 1.0
Total CPUE = 114.0 (17; 114)
Stock CPUE = 111.0 (18; 111)
PSD = 7 (1.9)



Effort = 1.0
Total CPUE = 156.0 (26; 156)
Stock CPUE = 109.0 (20; 109)
PSD = 24 (8.2)



Effort = 1.0
Total CPUE = 160.0 (25; 160)
Stock CPUE = 130.0 (29; 130)
PSD = 6 (2.2)

Figure 3. Number of Redear Sunfish caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Gilmer Reservoir, Texas, 2008, 2010, and 2012.

Sunfishes

Table 9. Creel survey statistics for sunfishes at Gilmer Reservoir from September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013. Total catch per hour is for anglers targeting sunfishes and total harvest is the estimated number of sunfishes harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	Year		
	2001/2002	2005/2006	2012/2013
Directed effort (h)	8,127 (17)	6,958 (15)	5,772 (21)
Directed effort/acre	8.0 (17)	6.9 (15)	5.7 (21)
Total catch per hour	6.1 (26)	3.2 (17)	3.3 (30)
Total harvest	36,356 (43)	19,287 (75)	7,860 (39)
Harvest/acre	36.0 (43)	19.1 (75)	7.8 (39)
Percent legal released	47.2	41.3	44.9

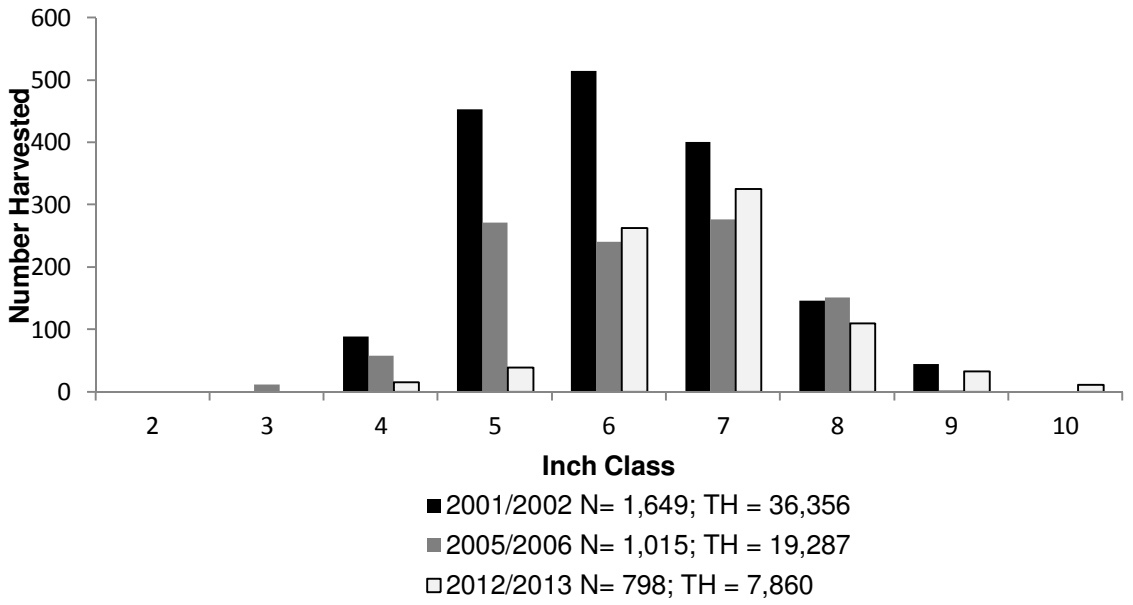
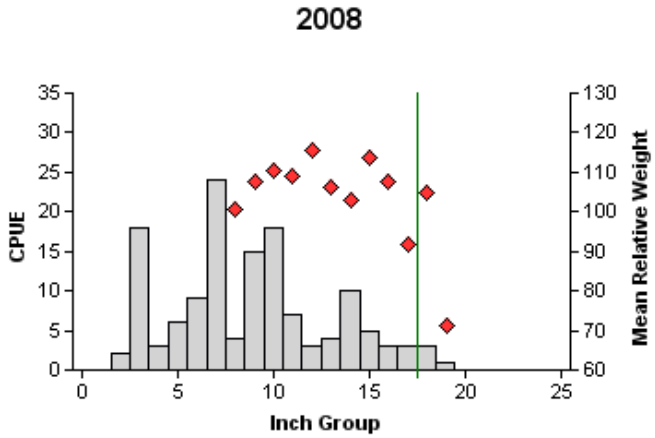
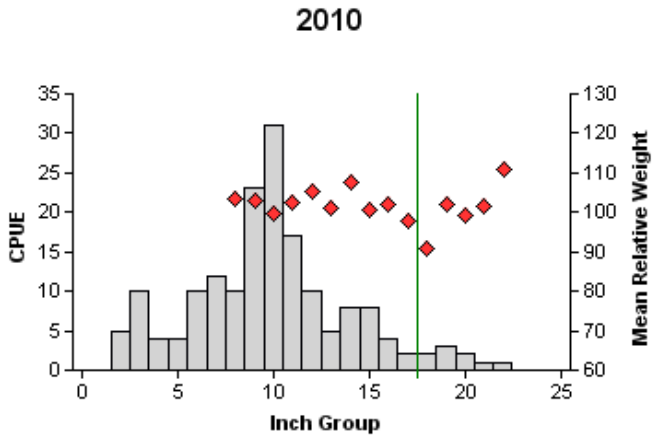


Figure 4. Length frequency of harvested sunfishes observed during creel surveys at Gilmer Reservoir, Texas, September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013, all anglers combined. N is the number of harvested sunfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

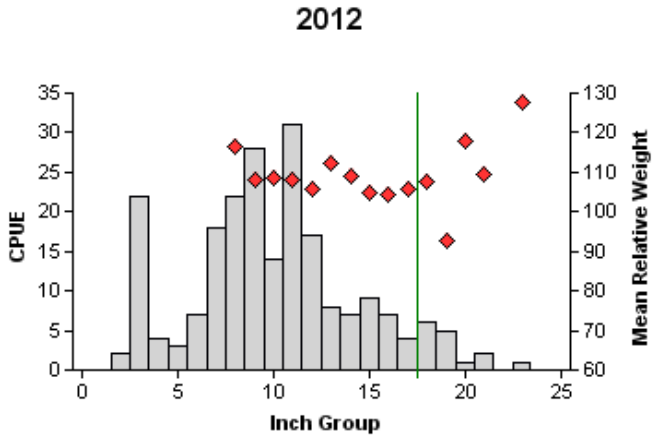
Largemouth Bass



Effort =	1.0
Total CPUE =	138.0 (17; 138)
Stock CPUE =	76.0 (17; 76)
PSD =	42 (6.2)
PSD-P =	20 (3.5)
PSD-M =	0 (0)



Effort =	1.0
Total CPUE =	172.0 (19; 172)
Stock CPUE =	127.0 (18; 127)
PSD =	36 (6.4)
PSD-P =	18 (3.4)
PSD-M =	3 (1.6)



Effort =	1.0
Total CPUE =	218.0 (15; 218)
Stock CPUE =	162.0 (16; 162)
PSD =	41 (5.4)
PSD-P =	22 (4.1)
PSD-M =	2 (1.4)

Figure 5. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Gilmer Reservoir, Texas, 2008, 2010, and 2012. Vertical lines indicate the minimum length limit at time of survey.

Largemouth Bass

Table 10. Creel survey statistics for Largemouth Bass at Gilmer Reservoir, TX from September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013. Catch rate is for all anglers targeting Largemouth Bass. Harvest is partitioned by the estimated number of fish harvested by non-tournament anglers and the number of fish retained by tournament anglers for weigh-in and release. The estimated number of fish released by weight category is for anglers targeting Largemouth Bass. Relative standard errors (RSE) are in parentheses.

Statistic	2001/2002[1]	2005/2006	2012/2013
Directed angling effort (h)			
Tournament		3,906 (25)	1,807 (32)
Non-tournament		27,306 (11)	18,693 (16)
All black bass anglers combined	27,667 (10)	31,212 (13)	20,500 (17)
Angling effort/acre	27.4 (10)	30.9 (13)	20.3 (17)
Catch rate (number/h)	1.0 (15)	0.7 (12)	0.6 (19)
Harvest			
Non-tournament harvest		90 (173)	76 (250)
Harvest/acre		<0.1 (173)	<0.1 (250)
Tournament weigh-in and release		180 (209)	51 (374)
Release by weight[2]			
<4.0 lbs			
4.0-6.9 lbs			1,670 (52)
7.0-9.9 lbs			279 (68)
≥10.0 lbs			
Percent legal released (non-tournament)	94.9	94.6	95.9

[1] Partitioned tournament data was not available for the 2001/2002 creel survey.
[2] Release by weight was not recorded during the 2001/2002 or 2005/2006 creel surveys. Release by weight was not recorded for bass <4.0 lbs during the 2012/2013 creel survey.

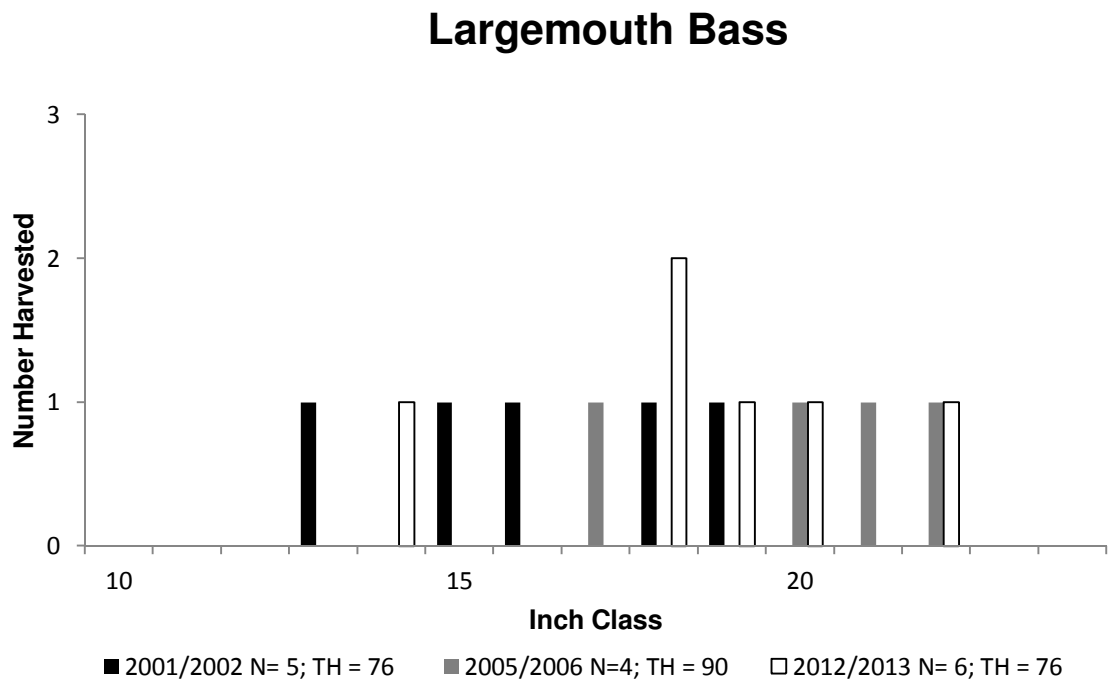


Figure 6. Length frequency of non-tournament harvested Largemouth Bass observed during creel surveys at Gilmer Reservoir, Texas, from September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013 for all anglers combined. N is the number of harvested Largemouth Bass observed during creel surveys, and TH is the estimated non-tournament harvest for the creel period.

Table 11. Results of genetic analysis of Largemouth Bass collected by fall electrofishing, Gilmer Reservoir, Texas, 2012. FLMB = Florida Largemouth Bass, NLMB = Northern Largemouth Bass, Intergrade = hybrid between an FLMB and an NLMB. Genetic composition was determined by electrophoresis prior to 2005 and with micro-satellite DNA analysis since 2005.

		Number of fish				
Year	Sample size	FLMB	Intergrade	NLMB	% FLMB alleles	% FLMB
2001	38	8	13	17	35.3	21.0
2002	25	8	16	1	60.0	32.0
2004	67	5	39	23	33.6	7.5
2012	30	0	29	1	42.0	0.0

Crappie

Table 12. Creel survey statistics for crappie at Gilmer Reservoir from September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013. Total catch per hour is for anglers targeting crappie and total harvest is the estimated number of crappie harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel Survey Statistic	Year		
	2001/2002	2005/2006	2012/2013
Directed effort (h)	1,713 (29)	6,479 (18)	6,628 (20)
Directed effort/acre	1.7 (29)	6.4 (18)	6.6 (20)
Total catch per hour	3.6 (22)	2.9 (30)	1.6 (32)
Total harvest	444 (241)	7,648 (47)	10,992 (36)
Harvest/acre	0.4 (241)	7.6 (47)	10.9 (36)
Percent legal released	16.3	39.3	2.5

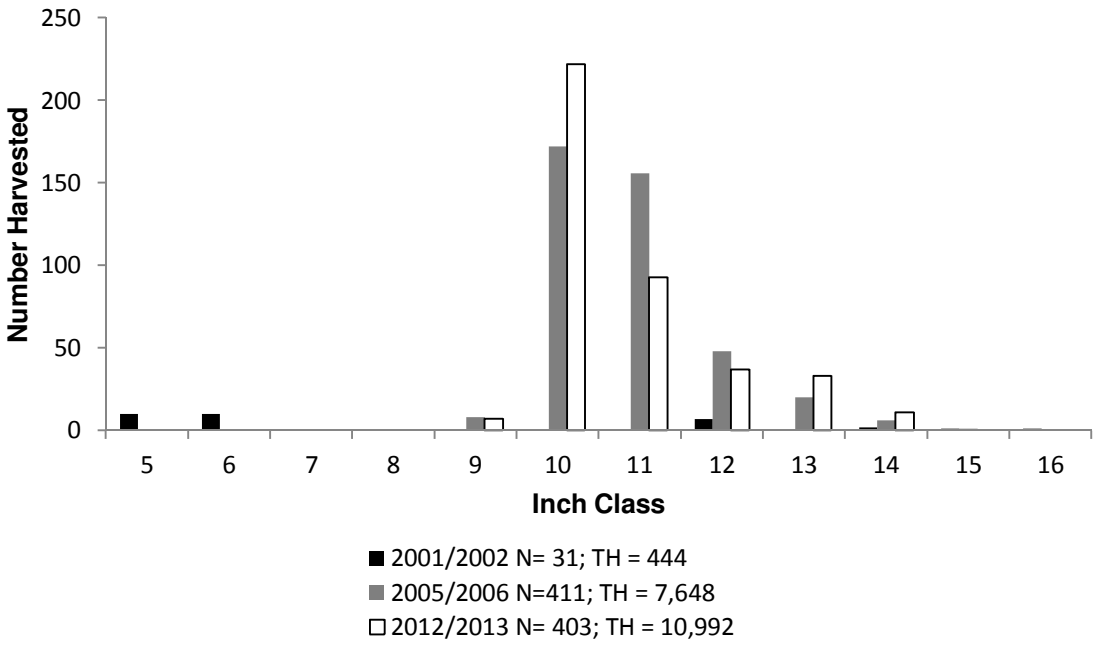


Figure 7. Length frequency of harvested crappie observed during creel surveys at Gilmer Reservoir, Texas, September 2001 through August 2002, June 2005 through May 2006, and June 2012 through May 2013 all anglers combined. N is the number of harvested crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

Table 13. Proposed sampling schedule for Gilmer Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

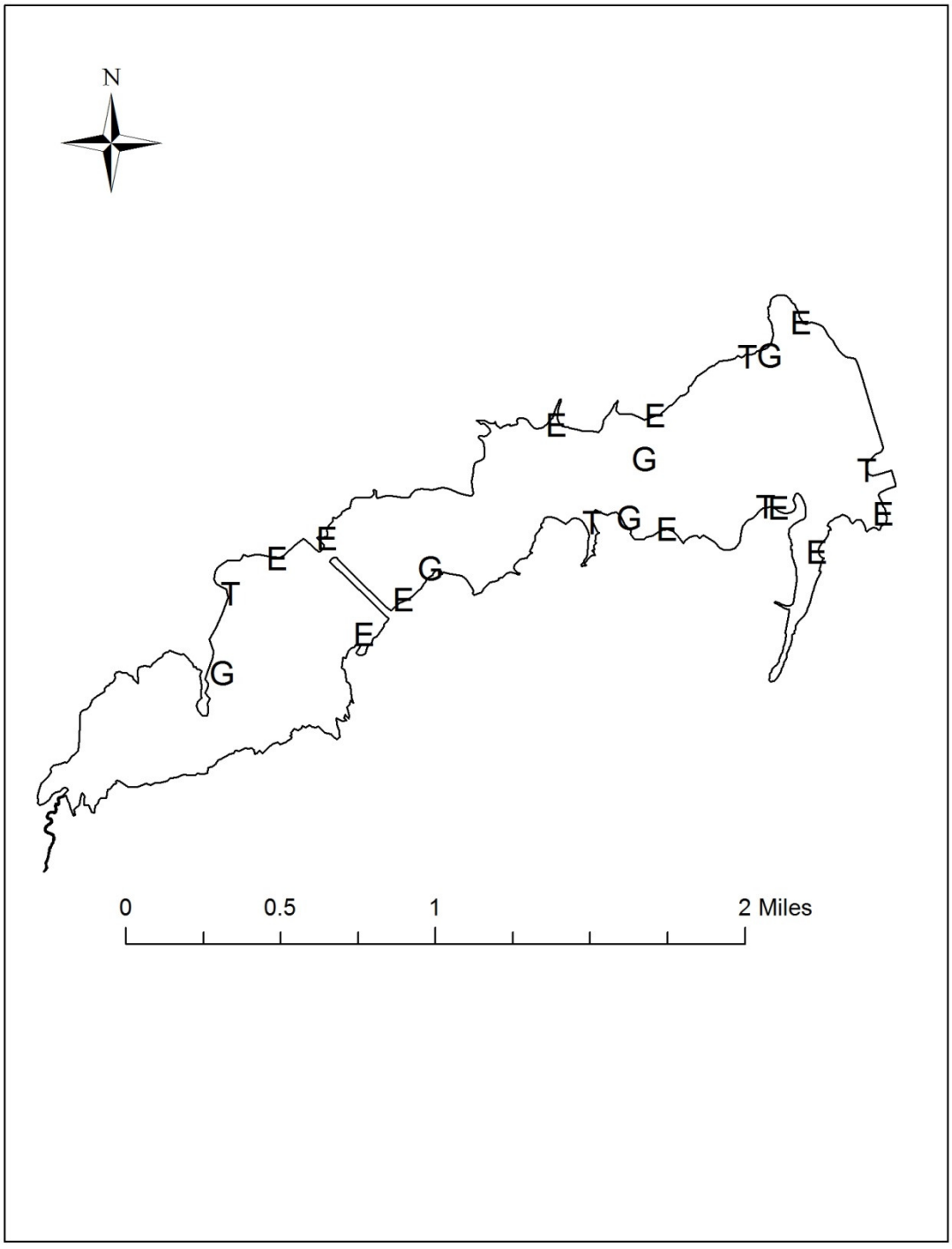
Survey year	Electrofish Fall(Spring)	Trap net	Gill net	Habitat		Access	Creel survey	Report
				Structural	Vegetation			
2013-2014					A			
2014-2015	A				A			
2015-2016					A			
2016-2017	S		S		S	S		S

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected from all gear types from Gilmer Reservoir, Texas, 2012-2013. Sampling effort was 5 net nights for gill netting, 5 net nights for trap netting, and 1 hour for electrofishing.

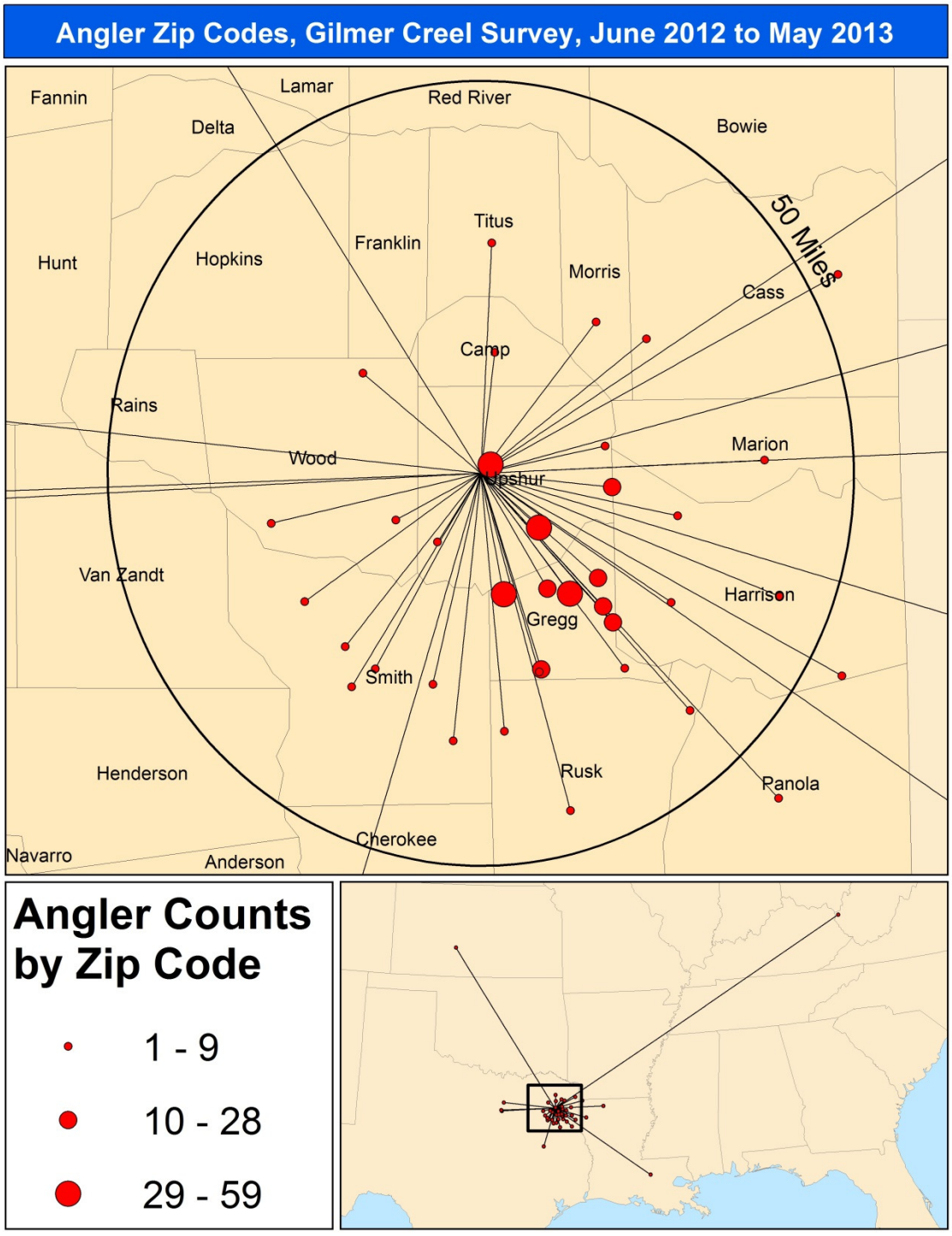
Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					33	33.0
Threadfin Shad					413	413.0
Channel Catfish	1	0.2				
Warmouth					1	1.0
Orangespotted Sunfish					1	1.0
Bluegill					319	319.0
Redear Sunfish					160	160.0
Largemouth Bass					218	218.0
Black Crappie			2	0.4		

APPENDIX B



Location of sampling sites, Gilmer Reservoir, Texas, 2012-2013. Trap net, gill net, and electrofishing stations are indicated by T, G, and E, respectively. Water level was near full pool at time of sampling.

APPENDIX C



Map of angler reported creel zip codes, Gilmer Reservoir, Texas June 2012 through May 2013.